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COMPLETE SPECIFICATION.

Communicated by:—THE SINGER MANUFACTURING COMPANY of Elizabeth, New Jersey, United States of America, a corporation organised under the laws of the State of New Jersey, United States of America.

Sewing Machines.

I, WALLACE CRANSTON FAIRWEATHER, M.A., of British Nationality, of 29, St. Vincent Place, Glasgow, and 65/66, Chancery Lane, London, W.C. 2, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

10 This invention relates to sewing machines, more particularly of the flat bed type having a loop-taker turning about a horizontal axis, and has for an object to provide for ready access to such a loop-taker.

With the above and other objects in view, as will hereinafter appear, the invention comprises the constructions, combinations and arrangements of parts hereinafter more particularly described and claimed.

20 The features of the invention and the advantages attained thereby will be readily understood by those skilled in the art from the following detailed description of a preferred embodiment of the invention, taken in connection with the accompanying drawings, in which Fig. 1 is a vertical sectional view through the stitching point of a sewing machine embodying the invention; looking in the direction of feed. Fig. 2 is a bottom plan view of the parts shown in Fig. 1. Fig. 3 is a rear side elevation of the parts shown in Fig. 1. Fig. 4 is a front end elevation of the parts. Fig. 5 is a section on the line 5—5, Fig. 3. Fig. 6 is a section on the line 6—6, Fig. 2, and Fig. 7 is a perspective view of the loop-taker in bobbin-removing and -replacing position.

1 represents the bed of a sewing machine having a reciprocating needle 2, presser-foot 3, feed-dog 4, throat-plate 5 and cover-slide 6 which is mounted as usual in the slide-ways 7 in the bed 1 and is shiftable from closed or full-line position, Figs. 1, 2 and 3, to open or dotted line position, Figs. 1, 3 and 7, to expose an

[Price 1/-]

opening 6 in the bed 1 for access to the loop-taker 8.

The loop-taker 8 is in the form of a cup-shaped rotary hook having a loop-taking beak 9 and supporting the usual stationary thread-case 10 in which the usual lower thread bobbin 11 is removably mounted.

The loop-taker 8 is carried by the loop-taker shaft 12 which is journalled horizontally in a bearing 13 in the U-shaped bracket 14, to the upper ends of the upwardly extending legs 15 of which are fixed the aligned hinge-pins 16, 16¹ journalled, respectively, in the bearing brackets 17, 17¹ fixed to the under side of the bed 1. The hinge-pin 16 is extended and formed at one end with a rotation-restraining tongue 18 which enters the usual rotation-restraining notch 19 of the thread-case 10.

The bracket 14 is formed at one side with a depression or recess 20, Fig. 4, which is entered by a spring-pressed ball 21 carried by the bracket 22 fixed to the bed 1. The ball 21 yieldingly retains the bracket 14 in full line or sewing position. The bore 23 in the bracket 22 is slightly reduced at its end 24 so as to be smaller than the ball 21 and hold the ball in the bore 23 when the bracket is swung out of sewing position.

It will be observed that, in the full line or sewing position of the parts, the loop-taker shaft 12 is disposed horizontally; the beak 9 rotating in a vertical plane. Also, the loop-taker body 8 and thread-case 10 are disposed mainly at one side of the vertical plane *a-a*, Fig. 1, containing the path of reciprocation of the needle 2 and disposed in the line of feed. The axis of the hinge-pins 16, 16¹ is disposed on the other side of the plane *a-a*. It results from this construction that, when the bracket 14 is swung about its hinges, the loop-taker 8 and thread-case 11 are carried out from under the throat-plate 5, across the plane *a-a*, and are tilted from a vertical to a readily

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accessible horizontal position Fig. 7, with the open side of the loop-taker uppermost, exposing the thread-case 10 for removal of the bobbin.

5 Secured to the cover-slide 6 is a downwardly extending post 25 which is connected by means of a link 26 to the bracket 14. When the cover-slide 6 is shifted from closed to open position to
10 expose the opening *b* in the bed 1, the loop-taker 8 and thread-case 10 are swung from sewing position to dotted line position directly below and facing the opening *b*, where the thread-case is readily
15 accessible for removal of the bobbin 11. When the cover-slide 6 is shifted to closed position, the loop-taker 8 and parts carried thereby are automatically restored to sewing position.

20 The loop-taker-shaft 12 is formed at one end with a flat face 27 and flange 28 in which is cut a notch 29. The notch 29 is normally entered by the spring-pressed coupling pin 30 mounted in the flanged
25 end 31 of the usual loop-taker driving shaft 32 journaled below the bed 1. When the bracket 14 is in sewing position, the flat face 27 of the flange 28 is in contact with the face of the flange 31, and
30 the shafts 12 and 32 are in alignment and are coupled together by the pin 30. This type of coupling permits the bracket 14 to be shifted at any time, with the loop-taker 8 in any position. Furthermore, it
35 is not necessary that the loop-taker 8 be in any particularly timed position when the bracket 14 is returned to sewing position. If the notch 29 is not in register with the pin 30, the flange 28 will simply
40 press the pin to the right, Fig. 1. When the machine is started in the usual manner to draw the bobbin-thread up through the needle-hole in the throat-plate, preparatory to sewing, the pin 30 will find the
45 notch 29 and enter the latter, thereby coupling the shaft 12 to the shaft 32 in properly timed relation.

The invention is not to be understood as limited to the form and arrangement of
50 parts disclosed herein as this disclosure is merely illustrative of a preferred embodiment of the invention. Nor is the invention to be understood as limited in all of its aspects to a lock-stitch sewing machine.

55 Having now particularly described and

ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

(1) Loop-taker mechanism for sewing machines comprising a circularly moving
60 loop-taker carrying a bobbin-case and operating in a vertical plane below the throat-plate alongside the usual cover-slide opening and shiftable from operative
65 position to an easily accessible position characterised in that the loop-taker is disconnectible from its driving means so that it may be shifted together with the bobbin-case to a horizontal position directly under
70 said opening.

(2) Loop-taker mechanism according to claim 1 further characterised in that the loop-taker is automatically reconnectible to its driving means in its proper timed
75 relation when restored to operative position.

(3) Loop-taker mechanism according to claim 1 further characterised in that a bracket in which the loop-taker shaft is
80 journaled is hinged to the bed to swing about and under the hinge connection to carry the loop-taker to a more readily accessible position below the bed.

(4) Loop-taker mechanism according to claims 1 and 3 further characterised in that the hinge-pin for the bracket has a portion cooperative with the thread-case
85 to restrain the latter from rotation.

(5) Loop-taker mechanism according to claims 1 and 2 in which the loop-taker shaft when in operative position is aligned with a loop-taker driving shaft, further
90 characterised in that a disc on one of the shafts carries a spring-pressed pin adapted to enter an opening or recess in a disc on the other shaft to couple the shafts
95 together in proper timed relation.

(6) Loop-taker mechanism according to claims 1 and 3 in which the bracket is of
100 U-shape, characterised in that the cover-slide is connected to the bracket to swing the latter on its hinges provided at the upper ends of the legs of the bracket.

Dated this 3rd day of November, 1931.
ORUIKSHANK & FAIRWEATHER,
29, St. Vincent Place, Glasgow, and
65/66, Chancery Lane, London, W.C. 2.
Agents for the Applicant.

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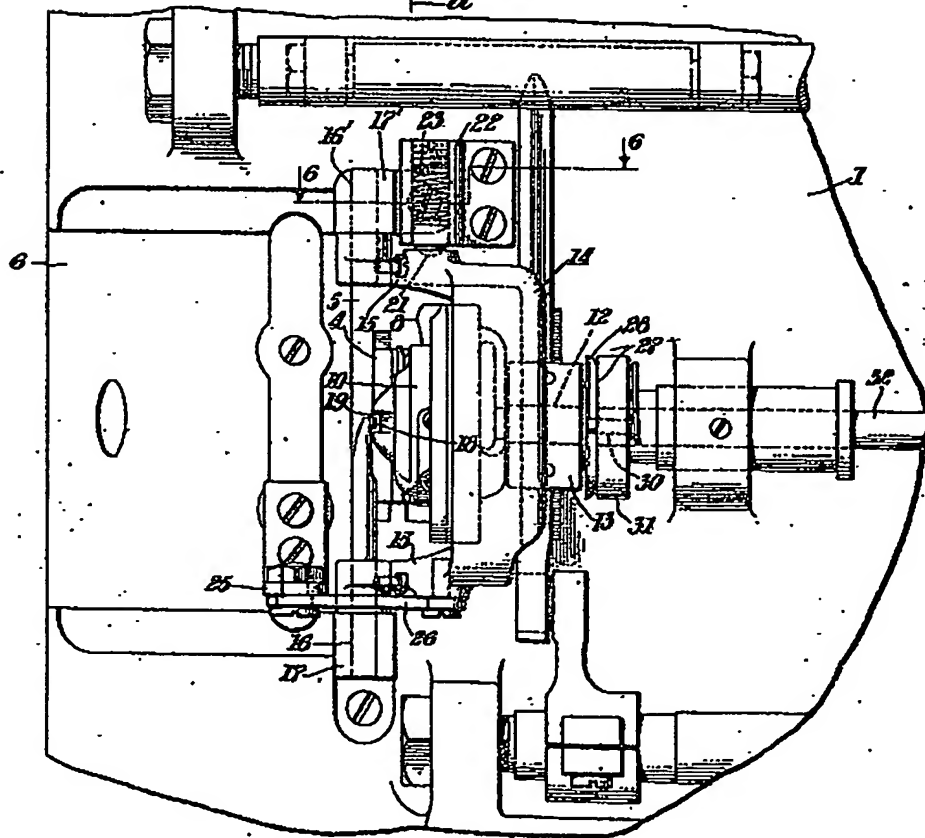
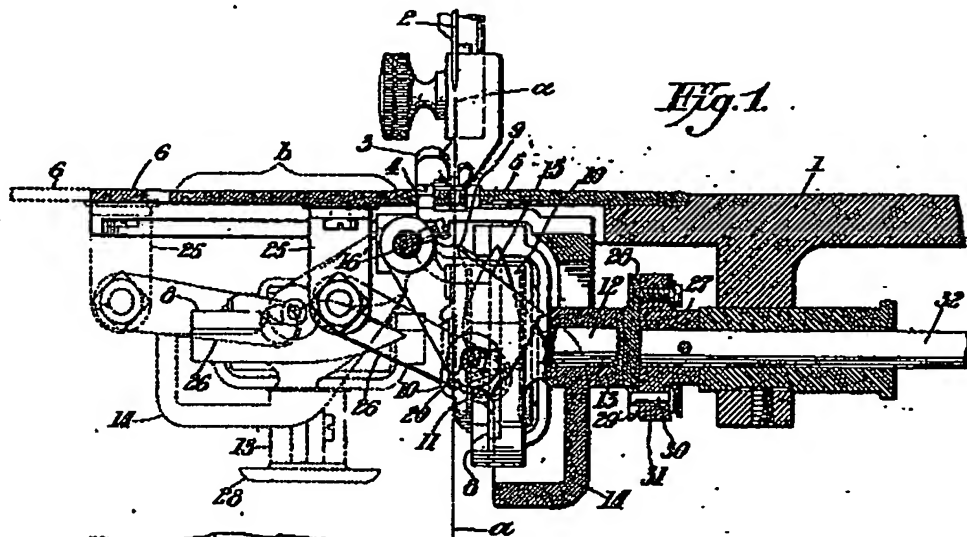


Fig. 2.

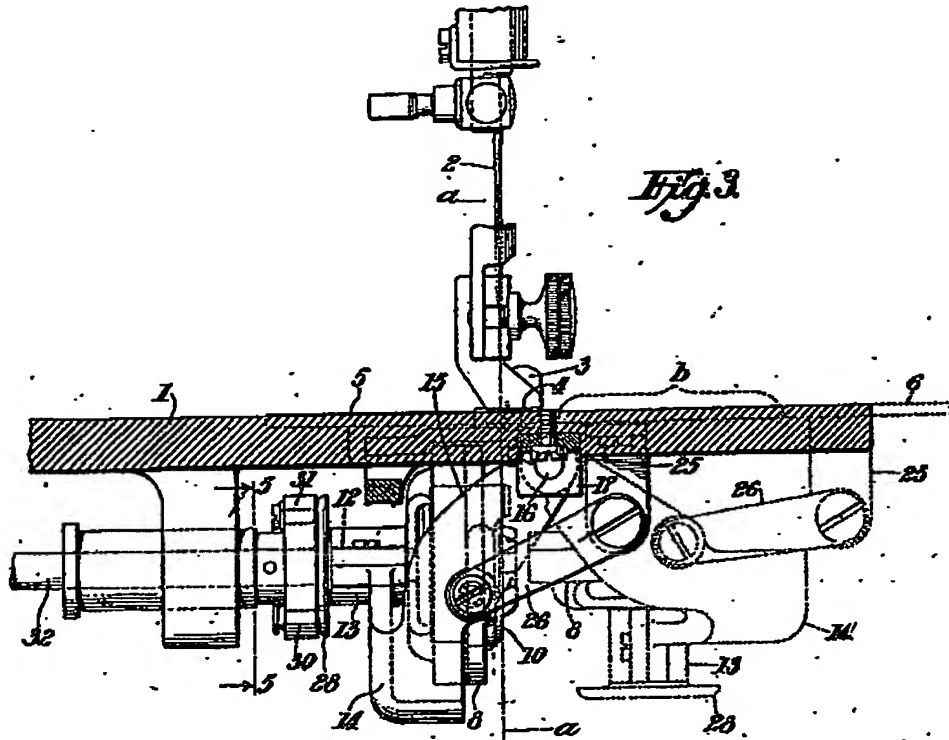


Fig. 3

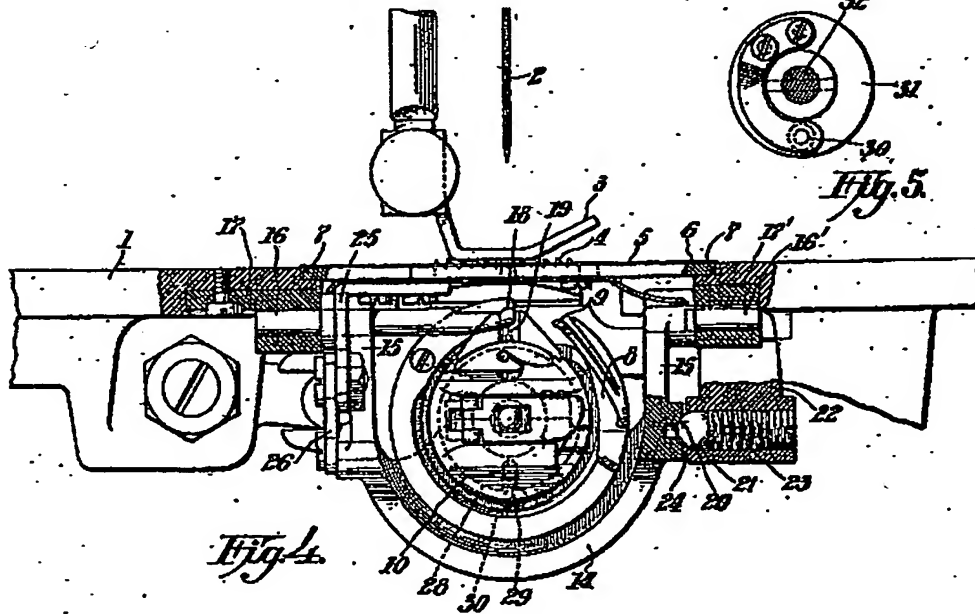


Fig. 4

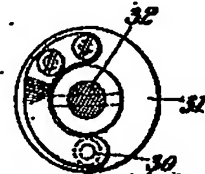
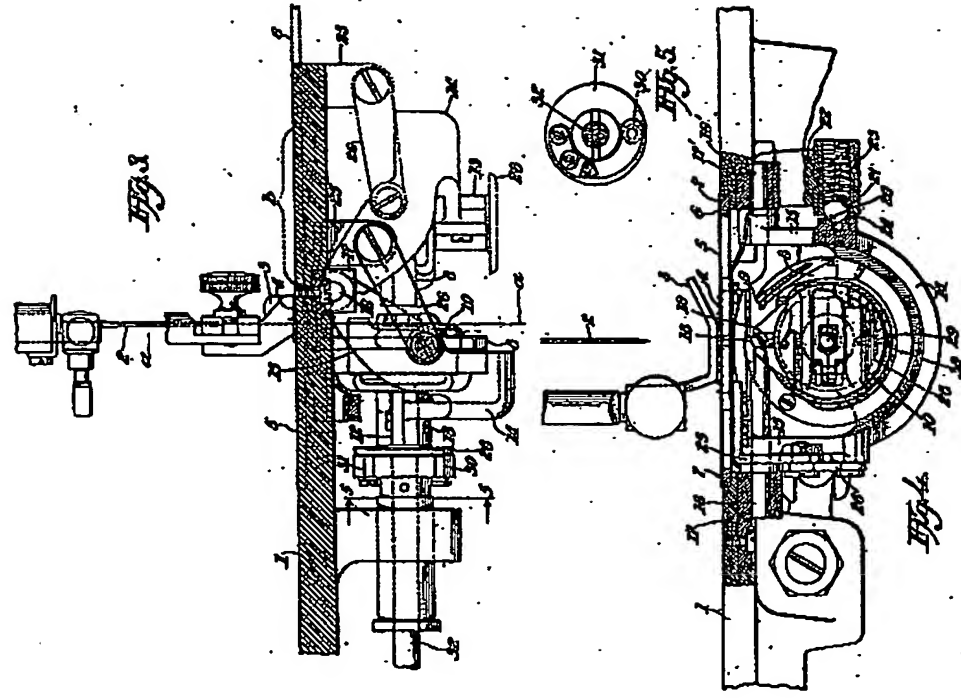
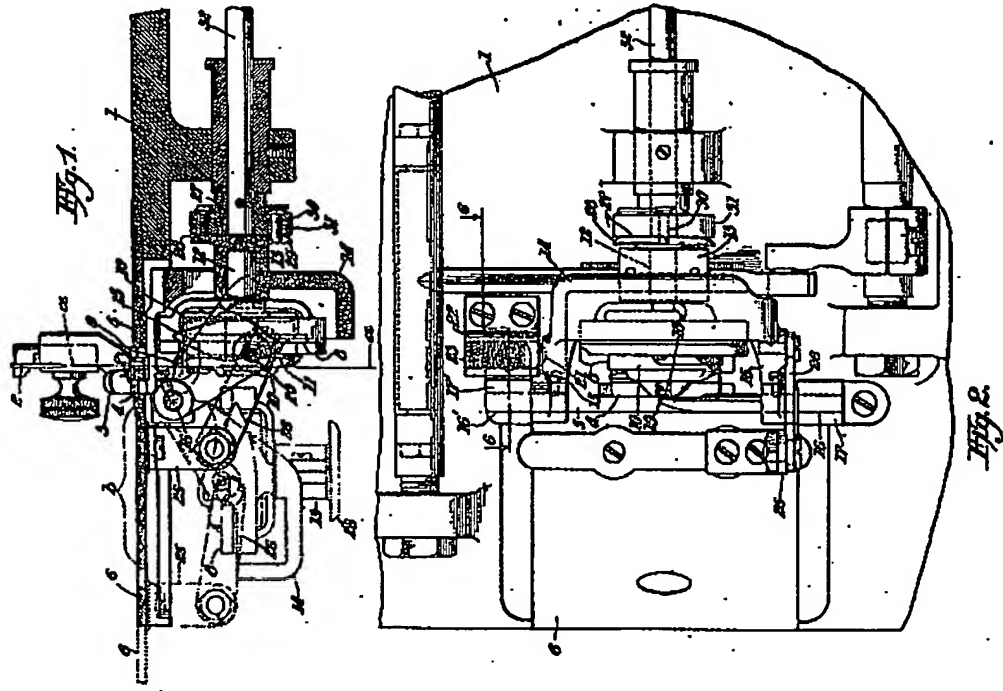


Fig. 5



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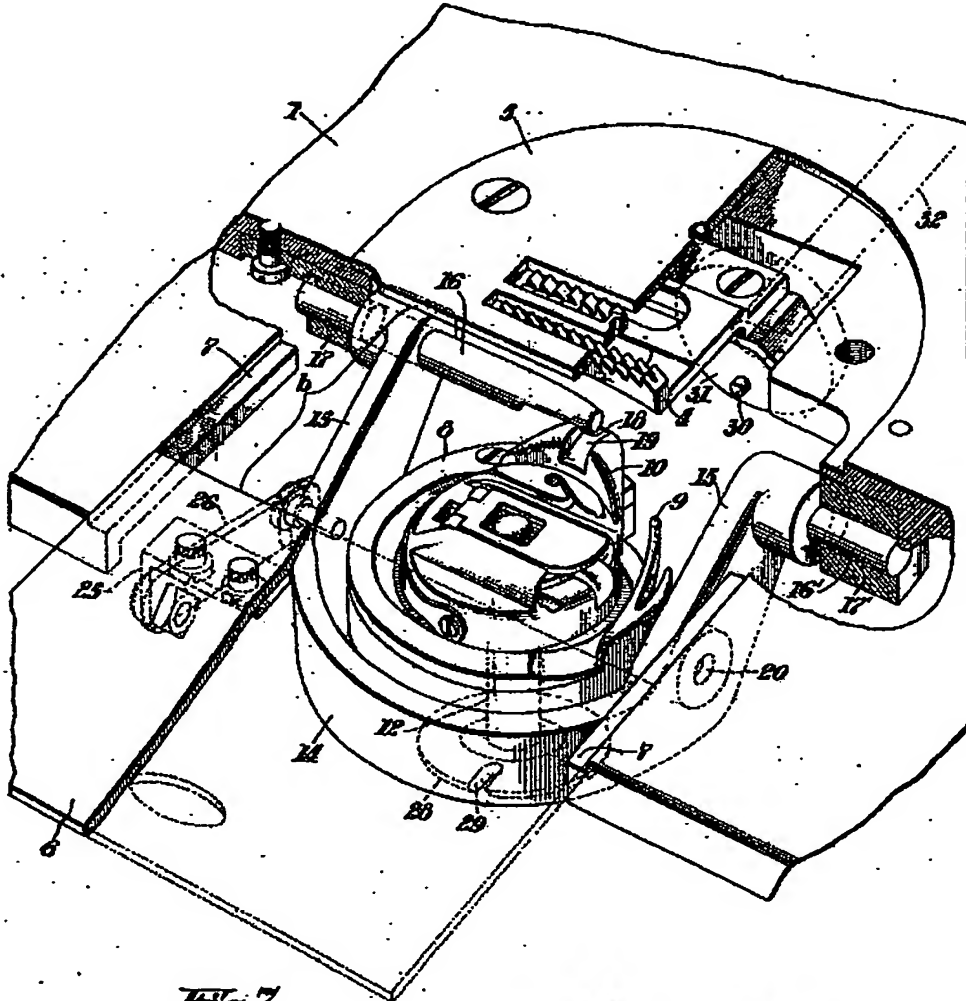


Fig. 7.

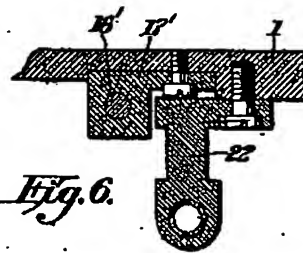


Fig. 6.

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